CLAIMS

What is claimed is:

1. A method of calibrating an objective, comprising:

receiving the objective over a raster-organized surface having both image display and image acquisition modalities;

positioning a calibration model before the objective and the raster-organized surface in preparation for acquiring images of the calibration model;

receiving images of the calibration model through the objective and onto raster-organized surface in an acquisition mode;

identifying optical characteristics of objective through a comparison of received images of the calibration model.

2. The method of claim 1 further comprising:

recording a calibration vector corresponding to the objective that compensates for optical characteristics of the objective during both display and acquisition modes.

3. The method of claim 2 wherein the calibration vector is stored in a storage area associated with the objective.

4. The method of claim 2 wherein the calibration vector corresponding to the objective is stored on a storage device selected from a set of storage devices including: a CD-ROM, a DVD, a magnetic-tape, a floppy disc and a flash memory device.

5. The method of claim 1 wherein the objective is comprised of one or more lenslets that refract light in two dimensions.

6. The method of claim 5 wherein the one or more lenslets are organized in a monolithic

array configuration.

7. The method of claim 6 wherein the lenslets in the monolithic array are organized into arrays selected from a set of shapes including a square shape, a hexagonal shape and a random shape.

8. The method of claim 5 wherein the lenslets facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

9. The method of claim 1 wherein the objective is comprised of one or more lenticules that refract light in a single dimension.

10. The method of claim 9 wherein the one or more lenticules are organized in a monolithic columnar array.

11. The method of claim 9 wherein the lenticules facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

12. The method of claim 1 wherein the raster oriented surface is comprised of adjacent emitting elements and sensing elements to perform the image display and image acquisition modalities respectively.

13. The method of claim 12 wherein the emitting elements are selected from a set including liquid crystal display (LCD), light emitting diode (LED), and other components, and the sensing elements include photoreceptors.

14. The method of claim 1 wherein the raster oriented surface is comprised of dual-purpose elements configured to perform both image display and image acquisition modalities under a control.

15. The method of claim 14 wherein the dual-purpose elements are configured from an

organic light emitting device (OLED) material, or other material, that emits energy to perform image display when the control provides a first control signal and senses energy to perform image acquisition when the control provides a second control signal.

16. The method of claim 1 wherein the calibration model is an object presenting one or more different perspectives depending on the position of the objective on the raster oriented surface.

17. The method of claim 1 wherein receiving images of the calibration model, further comprises:

receiving one or more perspective views of the calibration model from one or more refractive elements of the objective.

18. A method of displaying images using an objective, comprising:

receiving the objective over a raster-organized surface having both an image display and an image acquisition modalities;

loading a calibration vector corresponding to the objective that compensates for optical characteristics of the objective when used in both a display mode and an acquisition mode; and

displaying images through the raster organized surface and objective compensated in accordance with the calibration vector for the objective.

19. The method of claim 18 wherein the objective is comprised of one or more lenslets that refract light in two dimensions.

20. The method of claim 19 wherein the one or more lenslets are organized in a monolithic array configuration.

21. The method of claim 20 wherein the lenslets in the monolithic array are organized into arrays selected from a set of shapes including a square shape, a hexagonal shape and a random shape.

22. The method of claim 21 wherein the lenslets facilitate autostereoscopic imaging when the raster organized surface operates in the image display modality.

23. The method of claim 18 wherein the objective is comprised of one or more lenticules that refract light in a single dimension.

24. The method of claim 23 wherein the one or more lenticules are organized in a monolithic columnar array.

25. The method of claim 23 wherein the lenticules facilitate autostereoscopic imaging when the raster organized surface operates in the image display modality.

26. The method of claim 18 wherein the raster oriented surface is comprised of adjacent emitting elements and sensing elements to perform the image display and image acquisition modalities respectively.

27. The method of claim 26 wherein the emitting elements are selected from a set including liquid crystal display (LCD) and light emitting diode (LED) components and the sensing elements include photoreceptors.

28. The method of claim 18 wherein the raster oriented surface is comprised of dual-purpose elements configured to perform both image display and image acquisition modalities under a control.

29. The method of claim 28 wherein the dual-purpose elements are configured from an organic light emitting device (OLED) material that emits energy to perform image display

when the control provides a first control signal and senses energy to perform image acquisition when the control provides a second control signal.

30. The method of claim 18 further comprising,

tracking the location of eyes viewing an image generated by objective and raster-organized surface by switching to image acquisition mode; and

adjusting a view zone displayed by raster-organized surface according to the location of eyes.

31. The method of claim 18 further comprising,

incorporating the images displayed using the raster organized surface and objective in a video conference with another raster organized surface also having another corresponding objective.

32. A system for calibrating an objective, comprising:

a calibration model positioned before the objective and the raster-organized surface in preparation for acquiring images of the calibration model;

a raster-organized surface having both image display and image acquisition modalities configured to receive the objective that receives images of the calibration model through the objective and onto raster-organized surface in an acquisition mode; and

a processor capable of executing instructions that identify the optical characteristics of the objective through a comparison of received images of the calibration model.

33. The system of claim 32 further comprising:

a storage area associated with the objective for recording a calibration vector corresponding to the objective that compensates for optical characteristics of the objective

during both display and acquisition modes.

34. The system of claim 33 wherein the calibration vector is stored in a storage area associated with the objective.

35. The system of claim 33 wherein the calibration vector corresponding to the objective is stored on a storage device selected from a set of storage devices including: a CD-ROM, a DVD, a magnetic-tape, a floppy disc and a flash memory device.

36. The system of claim 32 wherein the objective is comprised of one or more lenslets that refract light in two dimensions.

37. The system of claim 36 wherein the one or more lenslets are organized in a monolithic array configuration.

38. The system of claim 37 wherein the lenslets in the monolithic array are organized into arrays selected from a set of shapes including a square shape, a hexagonal shape and a random shape.

39. The system of claim 36 wherein the lenslets facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

40. The system of claim 32 wherein the objective is comprised of one or more lenticules that refract light in a single dimension.

41. The system of claim 40 wherein the one or more lenticules are organized in a monolithic columnar array.

42. The system of claim 41 wherein the lenticules facilitate autostereoscopic display when the raster organized surface operates in the image display modality.

43. The system of claim 42 wherein the raster oriented surface is comprised of adjacent

emitting elements and sensing elements to perform the image display and image acquisition modalities respectively.

44. The system of claim 42 wherein the emitting elements are selected from a set including liquid crystal display (LCD), light emitting diode (LED), and other components, and the sensing elements include photoreceptors.

45. The system of claim 32 wherein the raster oriented surface is comprised of dual-purpose elements configured to perform both image display and image acquisition modalities under a control.

46. The system of claim 45 wherein the dual-purpose elements are configured from an organic light emitting device (OLED) material, or other material, that emits energy to perform image display when the control provides a first control signal and senses energy to perform image acquisition when the control provides a second control signal.

47. The system of claim 32 wherein the calibration model is an object presenting one or more different perspectives depending on the position of the objective on the raster oriented surface.

48. An apparatus for calibrating an objective, comprising:

means for receiving the objective over a raster-organized surface having both image display and image acquisition modalities;

means for positioning a calibration model before the objective and the raster-organized surface in preparation for acquiring images of the calibration model;

means for receiving images of the calibration model through the objective and onto raster-organized surface in an acquisition mode; and

means for identifying optical characteristics of objective through a comparison of received images of the calibration model.

49. An apparatus for displaying images using an objective, comprising:

means for receiving the objective over a raster-organized surface having both an image display and an image acquisition modalities;

means for loading a calibration vector corresponding to the objective that compensates for optical characteristics of the objective when used in both a display mode and an acquisition mode; and

means for displaying images through the raster organized surface and objective compensated in accordance with the calibration vector for the objective.

50. An imaging device comprising:

an objective having an array of lenses mounted fixedly over a raster organized surface and a storage area holding a calibration vector capable of calibrating the lenses used in the objective.

51. The imaging device in claim 50 wherein the lenses are selected from a set including a lenslet and a lenticule.

52. The imaging device of claim 50 wherein the raster organized surface operates in a display mode and an image acquisition mode.

53. The imaging device of claim 50 used as an autostereoscopic display.